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IN THE CLAIMS*The status of the claims as presently amended is as follows:*

1. (*Currently Amended*) An exhaust gas purifying system comprising:
- an oxidation catalyst disposed in an exhaust passage of an engine;
  - a filter disposed in said exhaust passage at a position downstream of said oxidation catalyst to collect a particulate matter contained in exhaust gas;
  - a regeneration start determining means for determining a regeneration start of said filter;
  - a regenerator means for regenerating said filter;
  - an oxygen mass flow rate detecting means for detecting or calculating a mass flow rate of oxygen fed to said filter; and
  - a regeneration end determining means for determining a regeneration end of said filter ~~in accordance with information provided from~~ based on the mass flow rate detected or calculated by said oxygen mass flow rate detecting means,
- wherein said regeneration end determining means determines the regeneration end of said filter when and upon arrival of an integrated value of said oxygen mass flow rate at reaches a predetermined value during regeneration of said filter by said regenerator means.

2. (*Original*) An exhaust gas purifying system according to claim 1, further comprising a temperature detecting means for detecting the temperature of said filter, and
- wherein said regeneration end determining means determines a regeneration end of said filter in accordance with information provided from said temperature detecting means and said oxygen mass flow rate detecting means and upon arrival at a predetermined value of an integrated value of said oxygen mass flow rate from the time when the temperature of said filter has reached a predetermined temperature.

3. (*Currently Amended*) An exhaust gas purifying system according to claim 1, wherein said regeneration end determining means determines a regeneration end of said filter upon establishment of the following equation:

$$\Sigma \Delta PM = C \cdot \Sigma (\text{oxygen mass flow rate})_1$$

$$\text{where } [C] = A \cdot PM \cdot e^{(-E/RT)}_1$$

$\Sigma \Delta PM$ : target combustion quantity of particulate matter<sub>1</sub>

$\Sigma (\text{oxygen mass flow rate})$ : integrated value of a mass flow rate of oxygen fed to the filter<sub>1</sub>

A: constant obtained by experiment (frequency factor),

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PM: amount of particulate matter deposited on the filter at the beginning of regeneration,

E: activation energy constant,

R: gas constant, and

T: filter temperature.

4. (*Currently Amended*) An exhaust gas purifying system according to claim 1, further comprising an air flow sensor for detecting a flow rate of intake air, and wherein said oxygen mass flow rate detecting means calculates the oxygen mass flow rate  $O_{2w}$  in accordance with the following equation including the mass flow rate of intake air  $Q_{aw}$  obtained from said air flow sensor:

$$O_{2w} = (Q_{aw} - q \cdot a) \cdot b,$$

wherein  $q$ : fuel injection quantity,

$a$ : equivalence ratio, and

$b$ : oxygen mass ratio.

5. (*Original*) An exhaust gas purifying system according to claim 1, further comprising: an  $O_2$  sensor disposed between said oxidation catalyst and said filter to detect an oxygen concentration; and a sensor for detecting the flow rate of fluid entering said filter, and wherein the oxygen mass flow rate detecting means calculates the oxygen mass flow rate  $O_{2w}$  on the basis of detection results provided from said two sensors.

6. (*Currently Amended*) An exhaust gas purifying system according to claim 1, wherein: ~~wherein~~ said regeneration end determining means has a combustion quantity estimating means for calculating or estimating a combustion quantity of the particulate matter collected by said filter, ~~wherein~~ said combustion quantity estimating means calculating or estimating a combustion quantity of the particulate matter by multiplying the integrated value of the oxygen mass flow rate obtained from said oxygen mass flow rate detecting means by a predetermined coefficient, and ~~wherein~~ the end of regeneration of said filter is determined upon arrival at a predetermined target value of the combustion quantity of the particulate matter calculated or estimated by said combustion quantity estimating means.

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7. (*Currently Amended*) An exhaust gas purifying system according to claim 6, wherein:

~~wherein~~ said regeneration start determining means has a deposition quantity estimating means for calculating or estimating a deposition quantity of the particulate matter deposited on said filter, and

~~wherein~~ said predetermined target value is a deposition quantity of the particulate matter at the beginning of the regeneration which is estimated by said deposition quantity estimating means.

8. (*Original*) An exhaust gas purifying system according to claim 2, wherein said temperature detecting means is a temperature sensor disposed downstream of said catalyst, and an outlet temperature of said catalyst is used as the temperature of said filter.

9. (*Currently Amended*) An exhaust gas purifying system according to claim 2, wherein:

~~wherein~~ said temperature detecting means comprises temperature sensors disposed upstream and downstream respectively of said filter to detect an inlet temperature  $T_f$  and an outlet temperature  $T_r$  of the filter, and

~~wherein~~ said temperature detecting means calculates a filter temperature on the basis of the inlet temperature  $T_f$  and the outlet temperature  $T_r$  detected by said temperature sensors and in accordance with the following equation:

$$\text{Filter temperature } T_{fi} = T_f \cdot a + T_r (1 - a),$$

wherein  $a$ : a value for weighting the inlet temperature  $T_f$  and the outlet temperature  $T_r$ , satisfying the relation of  $0 \leq a \leq 1$ .

10. (*Original*) An exhaust gas purifying system according to claim 1, wherein said regeneration end determining means determines the end of regeneration only during forced regeneration of said filter.

11. (*Original*) An exhaust gas purifying system according to claim 1, wherein said engine is a diesel engine.

12. (*Currently Amended*) A regeneration end determining method for an exhaust gas purifying system comprising an oxidation catalyst disposed in an exhaust passage of an engine and a

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filter disposed in the exhaust passage at a position downstream of said oxidation catalyst to collect a particulate matter contained in exhaust gas, said method comprising the steps of:

starting a forced regeneration of said filter;

determining whether the temperature of said filter has reached a predetermined temperature or not during execution of said forced regeneration;

determining whether an integrated value of an oxygen mass flow rate, from the time-point of ~~arrival of~~ the filter temperature ~~at reaching~~ the predetermined temperature during execution of said forced regeneration, has reached a predetermined value or not; and

terminating said forced regeneration ~~upon arrival of~~ when the integrated value of said oxygen mass flow rate ~~at reaches~~ the predetermined value.

13. (*Currently Amended*) A regeneration end determining method for an exhaust gas purifying system comprising an oxidation catalyst disposed in an exhaust passage of an engine and a filter disposed in the exhaust passage at a position downstream of said oxidation catalyst to collect a particulate matter contained in exhaust gas, said method comprising the steps of:

determining whether a forced regeneration of said filter is being executed or not;

determining whether the temperature of said filter has reached a predetermined temperature or not during execution of said forced regeneration;

determining whether an integrated value of an oxygen mass flow rate, from the time-point of ~~arrival of~~ the filter temperature ~~at reaching~~ the predetermined temperature during execution of said forced regeneration, has reached a predetermined value or not; and

terminating said forced regeneration ~~upon arrival of~~ when the integrated value of said oxygen mass flow rate ~~at reaches~~ the predetermined value.